

Claims

- [c1] A mobile terminal for providing sound pressure level dissipation of sound from a transducer comprising:
- a front housing having a front face and a rear face, the front housing having a listening area and at least one first port therethrough;
 - a back housing mounted to the front housing to form an enclosure in which the transducer is disposed;
 - a plate mounted to the front face or rear face, the plate having at least one first port therethrough not axially aligned with the at least one first port through the front housing listening area; and
 - at least one channel extending generally perpendicularly from the axis of and laterally between the at least one first port through the front housing and the at least one first port through the plate.
- [c2] A mobile terminal as recited in claim 1, further comprising an ear-sealing region central to the front housing listening area, at least one second port through the front housing, and at least one second port through the plate, wherein the at least one second port through the front housing is axially aligned with the at least one second port through the plate, both within the ear-sealing region.
- [c3] A mobile terminal as recited in claim 2, wherein the plate is mounted to the rear face of the front housing, the at least one first port through the plate is within the ear-sealing region, and the at least one first port of the front housing is outside the ear-sealing region.
- [c4] A mobile terminal as recited in claim 2, wherein the plate is mounted to the front face of the front housing, the at least one first port through the front housing is within the ear-sealing region, and the at least one first port through the plate is outside the ear-sealing region.
- [c5] A mobile terminal as recited in claim 1, wherein the at least one channel comprises a recess in a group selected from the front housing, the plate, and a combination thereof.

- [c6] A mobile terminal as recited in claim 1, wherein the at least one channel comprises a duct inserted between the front housing and the plate.
- [c7] A mobile terminal as recited in claim 1, wherein the enclosure is sealed from outward propagation of sound on all sides except for the front.
- [c8] A mobile terminal as recited in claim 1, wherein a single transducer is the sole means for producing sound to be heard by the user.
- [c9] A mobile terminal as recited in claim 1, wherein the back housing comprises a rear external surface of the mobile terminal.
- [c10] A mobile terminal as recited in claim 1, wherein the back housing comprises a partition within the mobile terminal.
- [c11] A mobile terminal for providing sound pressure level dissipation of sound from a transducer comprising:
a front housing having a front face and a listening area, the front housing having at least one first port and at least one second port therethrough within the listening area;
a back housing coupled to the front housing to form an enclosure in which the transducer is disposed;
a bezel mounted to the front face, covering the listening area, the bezel having at least one port central to the listening area approximately coaxial with each respective at least one first port, and at least one port distal from the bezel central port; and
at least one channel between the bezel and the front housing extending generally perpendicularly from the axis of and laterally away from the at least one second port to the at least one distal port through the bezel.
- [c12] A mobile terminal as recited in claim 11, further comprising an ear-sealing region central to the front housing listening area, wherein the at least one second port through the front housing is axially aligned with the at least one central port through the bezel, both within the ear-sealing region.
- [c13] A mobile terminal as recited in claim 12, wherein the at least one first port

through the front housing is within the ear-sealing region, and the at least one distal port through the bezel is outside the ear-sealing region.

[c14] A mobile terminal as recited in claim 12, wherein the at least one channel comprises a recess in a group selected from the front housing, the bezel, and a combination thereof.

[c15] A mobile terminal as recited in claim 11, wherein the at least one channel comprises a duct inserted between the front housing and the bezel.

[c16] A mobile terminal as recited in claim 11, wherein the enclosure is sealed from outward propagation of sound on all sides except for the front.

[c17] A mobile terminal as recited in claim 11, wherein a single transducer is the sole means for producing sound to be heard by the user.

[c18] A mobile terminal as recited in claim 11, wherein the back housing comprises a rear external surface of the mobile terminal.

[c19] A mobile terminal as recited in claim 11, wherein the back housing comprises a partition within the mobile terminal.

[c20] A mobile terminal for providing sound pressure level dissipation of sound from a transducer comprising:
a front housing having a listening area, an ear-sealing region within the listening area, a front face, and a rear face;
a back housing mounted to the front housing to form an enclosure in which the transducer is disposed;
first means for transmitting sound to the ear-sealing region; and
second means for transmitting sound from within the ear-sealing region to the listening area outside of the ear-sealing region.

[c21] A mobile terminal as recited in claim 20, wherein:
the first means comprise at least one first port through the front housing, and a plate mounted to the front face or rear face, the plate having at least one first port therethrough generally coaxial with the at least one first port through the front housing; and

the second means comprise at least one second port through the front housing and at least one second port through the plate not coaxial with the at least one first port through the front housing, and at least one channel extending generally perpendicularly from the axis of and laterally between the at least one port through the front housing and the at least one port through the plate.

[c22] A mobile terminal as recited in claim 21, wherein the plate is mounted to the rear face of the front housing, the at least one second port through the plate is within the ear-sealing region, and the at least one second port of the front housing is outside the ear-sealing region.

[c23] A mobile terminal as recited in claim 21, wherein the plate is mounted to the front face of the front housing, the at least one second port through the front housing is within the ear-sealing region, and the at least one second port through the plate is outside the ear-sealing region.

[c24] A mobile terminal as recited in claim 20, wherein the back housing comprises a rear external surface of the mobile terminal.

[c25] A mobile terminal as recited in claim 20, wherein the back housing comprises a partition within the mobile terminal.

[c26] A method for providing sound pressure dissipation of sound from a transducer in a mobile terminal, the mobile terminal having a front housing including a listening area and an ear-sealing region with the listening area, and a back housing mounted to the front housing to form an enclosure in which the transducer is disposed, the method comprising the step of transmitting sound through a channel from inside the enclosure and within the ear-sealing region to the listening area outside the ear-sealing region.

[c27] A method for providing sound pressure dissipation as recited in claim 26, further comprising the steps of:
transmitting sound through a port within the enclosure and within an ear-sealing region to one end of the channel; and
transmitting sound from the other end of the channel through a port opening to the listening area and outside the ear-sealing region.

[c28] A method for providing sound pressure dissipation of sound from a transducer in a mobile terminal, the method comprising the steps of:
providing a front housing having a front face and a rear face, the front housing having a listening area and at least one first port therethrough;
providing a back housing mounted to the front housing to form an enclosure in which the transducer is disposed;
providing a plate mounted to the front face or rear face, the plate having at least one first port therethrough not axially aligned with the at least one first port through the front housing listening area; and
providing at least one channel extending generally perpendicularly from the axis of and laterally between the at least one first port through the front housing and the at least one first port through the plate.